UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/455,932	12/07/1999	TETSUYA OKANO	1341.1035/JD	5754

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EXAMINER
CHOUDHARY, ANITA

ART UNIT	PAPER NUMBER
2153	

DATE MAILED: 01/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/455,932	OKANO ET AL.
	Examiner	Art Unit	
	Anita Choudhary	2153	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *16 September 2004*.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1,4 and 6-8* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1,4 and 6-8* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

The amendment filed on September 16, 2004 has been entered.   Claims 1, 4, 6, 7, and 8

have been amended and are presented for further examination. Claim 2 has been cancelled.

Claims 3 and 5 had been previously canceled.

Claims 1, 4, 6, 7, and 8 are presented.

Response to Arguments

Applicant's arguments with respect to claims 1, 4, 6, 7, and 8 have been considered but

are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making
and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it
pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode
contemplated by the inventor of carrying out his invention.

Claims 1, 4, 6, 7, and 8 are rejected under 35 U.S.C. 112, first paragraph, as failing to

comply with the enablement requirement. The claim(s) contains subject matter which was not

described in the specification in such a way as to enable one skilled in the art to which it pertains,

or with which it is most nearly connected, to make and/or use the invention.

Each of claims 1, 4, 6, 7, and 8 has been amended to include "TCP/non-TCP delivery".

"TCP delivery" is understood to describe a connection type of service for insuring reliability

(Specification: page 2 lines 17-22). However, the specification does not specifically define "non-

TCP delivery." Applicant's Remarks dated June 21, 2004, imply that a conventional network such as the Internet includes both TCP and non-TCP protocol delivery systems (Remarks: page 7 lines 3-10). The specification further alludes to UDP delivery as the intended "non-TCP delivery" system (Specification: page 2 lines 14- page 3 line 4). Therefore, Examiner takes the limitation "TCP/non-TCP delivery" to imply TCP and UDP delivery. Furthermore, Applicant's admission of prior art found in the background section of the specification shows that a conventional Internet connection includes both TCP and UDP (non-TCP delivery) traffic.

Each claim recites the steps for a "route load measuring unit" to measure a load in a TCP/non-TCP delivery route. An effective bandwidth of the route is estimated based on a plurality of parameters including round-trip time, a maximum segment size, and an adjustable congestion-evading congestion window size. However, the round-trip time parameter cannot apply to UDP (non-TCP delivery) traffic. As Applicant points out, UDP is a bare-bones protocol providing connection-less type of data transfer protocol for realization of high speed processing (Specification: page 2 line 23- page 3 line 4). And round-trip time is the time between the transmission of a packet and the receipt of its acknowledgment or reply. TCP provides end-to-end connection and state information allowing parameters such as round-trip time to be calculated for congestion control purposes. UDP, on the other hand, has no acknowledgment feature, does not maintain connection state information, and does not track any parameters. Therefore, it is unclear how a round-trip time can be measured for non-TCP delivery system, such as UDP.

Clarification is requested.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 4, and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jindal et al.

(US 6,327,622) in view of "Dynamic Computation of TCP Maximum Window Size for

Directly Connected Hosts" (hereinafter referred to as the IBM Technical Disclosure), and in

further view of Martin (US 6,263,368).

In referring to claim 1, Jindal shows a system for load balancing in a network

environment having a plurality of clients and servers (see fig. 1). Selection of server is based on

status and operational characteristics of each server, which are collected by each server and sent

to a central server. Jindal teaches:

A plurality of route loading measuring units (fig. 2, IMO, 210, 212, 214) each provided in

each of said server terminals (110, 112, 114) and each measuring a respective load in a route

from the unit to one client terminal having a request for service out of said client terminal (col. 8

lines 24-30, 37-41).

A selection unit (central server 100) which selects one server terminal out of said

terminals as a destination of the request for service from said one client terminal based on the

load measured by said route loading measuring units (IMO) (col. 5 lines 26-30, 36-41), wherein

each of said route loading measuring units monitors (IMO) operating states or respective server

terminals and when a request for service is received from client terminal, said selecting unit

(110) selects one server terminal out of said server terminal as a destination of the request for

service from said one client terminal based on the load and the operating states monitored by said

load measuring units (col. 6 lines 46-56), wherein the operating states include idle and active

states (col. 5 line 6-7).

A storing unit (RMO) which stores the load measured at a pre-specified time internal by

each of said route load measuring units, wherein when a request for service is received from said

one client terminal, said selection unit selects said one server terminal out of said server

terminals as a destination of the request for service from said one client terminal based on the

load stored in the storing unit (RMO, col. 7 lines 55-67, and as applicant points out in response

dated December 31, 2003, on page 7 lines 4-6, the claimed features of claim 2 are inherent to

claim 1 since effective bandwidth is generally measured over a time interval), and

Wherein said route-measuring units (IMO) each measures, as the load, an effective

bandwidth of the route (col. 5 lines 4-15).

Although Jindal shows substantial features of the claimed invention, Jindal does not

explicitly show the bandwidth measuring parameter for round-trip time, maximum segment size

and adjustable congestion-evading congestion window size. Nonetheless these features are well

known in the art, and would have been an obvious modification to the system disclosed by

Jindal, as evidenced by IBM technical disclosure.

In an analogous art, the IBM technical disclosure shows dynamic computation of various

network parameters which aid to improve the performance of connections in a network. The

IBM technical disclosure shows parameters such as round trip time (ANALYSIS section, first

two bullets), maximum segment size (COMPUTING WINDOW section, last bullet), and an adjustable congestion-evading congestion window size (Disclosure text, first bullet).

Given these features, a person of ordinary skill in the art would have readily recognized the desirability and advantages of modifying the system shown by Jindal to employ the features shown by the IBM technical disclosure in order to make accurate traffic measurement.

Although the above cited references show substantial features of the claimed invention, they do not explicitly show a non-TCP delivery route, such as UDP traffic. Nonetheless this feature is well known, if not inherent in the art, and would have been an obvious modification to the system disclosed by Jindal and IBM as evidenced by Martin. In an analogous art, Martin shows a network load balancing system for a multi-computer server by counting message packet. Martin shows the measuring of respective load including TCP and UDP (non-TCP delivery) traffic flows (col. 6 lines 30-65, col. 10 lines 37-63).

Given this feature, a person of ordinary skill in the art would have readily recognized the desirability and advantages of modifying the system shown by Jindal and IBM to employ the feature shown by Martin in order to account for total effective Internet traffic on a network link.

In referring to claims 4 and 6, in addition to the rejection of claim 1 above, Jindal discloses a selecting unit (100) selecting a route measuring unit (IRMO, 406a, 416a) as a primary destination of the request based on load measured and operating status (fig. 3, col. 48 line 48-col. 10 line 12), and a system for load balancing among replicated services having server terminals divided into sever groups each having at least two of the server terminals (see Fig. 3, server farms) and selecting one server terminal out of the server terminals based on operating

status in the group as a secondary destination of the request for service from said one client

terminal (see Fig. 4; Note that in Fig. 4 each "IRMO" points to multiple servers, therefore it is

clear that one server terminal (secondary destination) will be selected based upon the results of

an operating status and/or load characteristics).

In referring to claim 7 and 8 Jindal shows:

A plurality of path load measuring and operating state monitoring devices (IMO) in each

server, arranged to measure effective bandwidths of path loads from a client terminal requesting

service to server terminals, wherein effective bandwidth is based monitoring states of several

terminals, idle and active states (col. 5 lines 4-15).

A DNS-responding device to compare effective bandwidth of measurements of path

loads from the plurality of path load measuring and operating state monitoring devices to the

client terminal and to select a server terminal having a larges effective bandwidth and an active

operating state to provide service to the client terminal (col. 5 lines 16-24).

Although Jindal shows substantial features of the claimed invention, Jindal does not

explicitly show the bandwidth measuring parameter for round-trip time, maximum segment size

and adjustable congestion-evading congestion window size. Nonetheless these features are well

known in the art, and would have been an obvious modification to the system disclosed by

Jindal, as evidenced by IBM technical disclosure.

In an analogous art, the IBM technical disclosure shows dynamic computation of various

network parameters which aid to improve the performance of connections in a network. The

IBM technical disclosure shows parameters such as round trip time (ANALYSIS section, first

two bullets), maximum segment size (COMPUTING WINDOW section, last bullet), and an adjustable congestion-evading congestion window size (Disclosure text, first bullet).

Given these features, a person of ordinary skill in the art would have readily recognized the desirability and advantages of modifying the system shown by Jindal to employ the features shown by the IBM technical disclosure in order to make accurate traffic measurement.

Although the above cited references show substantial features of the claimed invention, they do not explicitly show a non-TCP delivery route, such as UDP traffic. Nonetheless this feature is well known, if not inherent in the art, and would have been an obvious modification to the system disclosed by Jindal and IBM as evidenced by Martin. In an analogous art, Martin shows a network load balancing system for a multi-computer server by counting message packet. Martin shows the measuring of respective load including TCP and UDP (non-TCP delivery) traffic flows (col. 6 lines 30-65, col. 10 lines 37-63).

Given this feature, a person of ordinary skill in the art would have readily recognized the desirability and advantages of modifying the system shown by Jindal and IBM to employ the feature shown by Martin in order to account for total effective Internet traffic on a network link.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anita Choudhary whose telephone number is (703) 305-5268. The examiner can normally be reached on 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenton Burgess can be reached on (703) 305-4792. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anita Choudhary
January 4, 2005

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